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ESTIMATE OF PLANNING SURVEY EXPENDITURES
UNDER PROJECT HPS - 1 (15)
FOR PERIOD BEGINNING JULY 1, 1955, AND
ENDING MARCH 31, 1956

MONTANA STATE HIGHWAY COMMISSION
IN COOPERATION WITH
U. S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

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Submitted June 15, 1955

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M O N T A N A
STATE HIGHWAY COMMISSION
HELENA, MONTANA

June 15, 1955

MEMORANDUM

TO: Scott P. Hart, State Highway Engineer

FROM: Charles S. King, Planning Survey Engineer

Submitted herewith is an estimate of proposed activities and expenditures of the Planning Survey Division for the period beginning July 1, 1955 and ending March 31, 1956. In addition to being an estimate of proposed activities, the report is used as the basis for the execution of a project agreement for those items which have been programmed as HPS 1 (15) in previous program submittals covering FY 1954 funds.

The State has agreed to participate in the cost of a Road Test Project which is being conducted under the sponsorship of the AASHO in the State of Illinois. The cost of Montana's share of this project amounts to \$31,515.00 which, in accordance with Federal regulations, may be paid entirely out of Federal planning funds. This \$31,515.00 will be deducted from the \$74,361.00 in Federal Aid which has been programmed for the Primary System under HPS 1 (15). This will leave a net balance of \$42,846.00 in Federal Aid Primary Funds which will be included in this estimate.

Federal participation in the cost of this Planning Survey estimate is computed as follows:

PROJECT HPS 1 (15)

<u>Federal Aid System</u>	<u>Federal Aid</u>		<u>State Funds</u>		<u>Total</u>
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	
Primary	\$42,846	56.80	\$32,588	43.20	\$75,434
Secondary	51,136	56.80	38,893	43.20	90,029
Urban	4,739	56.80	3,605	43.20	8,344
Interstate	<u>7,564</u>	<u>65.44</u>	<u>3,995</u>	<u>34.56</u>	<u>11,559</u>
TOTAL - THIS ESTIMATE	\$106,285	57.34	\$79,081	42.66	\$185,366

The increase in the highway construction program, which is forecast for the next year, will be reflected in a corresponding increase for many of the Planning Survey activities. Additional effort will be involved for those activities which are concerned with the analysis and recording of data from

the construction contracts. Examples of these activities include the Road Log, Road Life, SM Tables, Straight Line Diagrams, and the tabulation of contract costs. It is also expected that traffic counting and origin and destination survey activities will be expanded to meet increased needs, especially with respect to the Interstate System. The increasing problem of urban congestion will also require special traffic surveys to gain the information necessary for a sound solution of these problems.

The 1955 Legislature enacted laws providing for the creation of a Fact Finding Committee on Highway, Streets and Bridges. Although this agency has its own funds for administration and operating costs, it will be necessary for the Planning Survey Division to supply much of the statistical data which are obtainable only from our records. It is also probable that the division will be requested to make special studies, within the scope of its activities, which will be of general interest in the highway transportation field.

An experimental truck port-of-entry survey was conducted during two months last summer. This survey consisted of stopping trucks at Lima and Saltese near the State border for the purpose of weighing and measuring the trucks and obtaining information concerning the origin and destination of trips, ownership of vehicles, commodity carried, rated capacity and gross vehicle weight registration, and other items of statistical interest. The valuable results obtained from this survey contributed to the decision to renew the survey during the summer months of 1955. It is planned to expand the scope somewhat and to establish weighing and interviewing stations at several additional points around the State.

The Bureau of Public Roads has requested that the State participate in a truck operating-cost survey. This survey will consist of the interviewing of major truck operators to obtain data concerning truck movements, commodity carried, vehicle characteristics, operating costs and other important statistical data. The survey will be particularly valuable with regard to the truck operating-cost phase as there is a dearth of reported information of this type.

The regular and continuing activities of the division will be conducted in about the same manner as heretofore, with moderate adjustments in some instances to meet changing requirements.

Your approval of this estimate is requested.

Charles S. King
Planning Survey Engineer



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Mont.

MONTANA STATE HIGHWAY COMMISSION
HIGHWAY PLANNING SURVEY
In Cooperation with
U. S. BUREAU OF PUBLIC ROADS

ESTIMATED ACTIVITIES AND EXPENDITURES UNDER PROJECT HPS 1 (15)

1. ROAD INVENTORY - REGULAR

Under this activity, the various road building agencies throughout the State are contacted to determine the extent and location of road construction which has been performed under their jurisdiction during the year. The data are then included in the road inventory and mapping records.

ESTIMATED EXPENDITURE \$ 2,000.00

2. ROAD INVENTORY AND FIELD CHECKING OF MAPS

After new maps for various counties have been prepared for aerial photography, a preliminary copy of the map is taken into the field where it is compared with actual ground conditions. Any changes or additions in road network or culture are noted on the map for correction on the final copy.

In order that the re-inventory may be expedited, it is planned to employ three crews during the summer months and for as long a period thereafter as weather and other conditions will permit. A tentative list of counties to be inventoried includes the following: Big Horn, Deer Lodge, Garfield, Glacier, Jefferson, Lake, Mineral, Phillips, Powell, Silver Bow, Sweet Grass, and Valley. Priority will be assigned to those counties which include the Interstate System.

ESTIMATED EXPENDITURE \$ 20,000.00

3. BRIDGE INVENTORY

During the past year, bridges in the western half of the State were inspected to determine their condition. Bridges in the eastern half of the State will be inspected during the coming year. It is expected that the cost of the project will be about the same as in preceding years.

ESTIMATED EXPENDITURE \$ 2,500.00

4. SUFFICIENCY RATINGS

In compliance with State law, an appraisal is made of the Primary System each year in order to determine the degree of deficiency that exists. The deficiencies are summarized by financial district and the results are used to govern the distribution of State construction funds among the various districts. The deficiencies are also summarized by Federal Aid routes and

for the Forest Highway System. A separate tabulation is prepared by priority ratings to assist in the selection of projects for programming. The cost of the project is expected to equal the average for previous years.

ESTIMATED EXPENDITURE \$ 2,000.00

5. TRUCK AND BUS INVENTORY

In order to obtain data required for the MVR report, it is necessary to extract essential statistics from the registration cards on file in the office of the Registrar of Motor Vehicles. A regular employee is stationed in Deer Lodge for this purpose. Because the number of registrations has increased greatly over the last few years, the work can no longer be handled by one employee, and it has been necessary to employ supplemental help during the summer months. Even with the additional help, it is believed that the annual cost of the project will be lower than last year because of the savings which will accrue through the establishment of IBM Mark-Sensing procedure in the preparation of cards.

ESTIMATED EXPENDITURE \$ 5,500.00

6. COUNTY MAPS - AERIAL

As stated under Item 2, a determined effort is being made to expedite the re-mapping of all counties in the State. New maps are being prepared on the basis of aerial photography, where available. In order to speed the preparation of these maps, employment of two additional draftsmen is planned. For this reason, the cost of the project will be somewhat greater than actual expenditures during recent months.

ESTIMATED EXPENDITURE \$ 15,000.00

7. COUNTY MAPS - OTHER

The present county maps must be revised as changes in road network and other features are discovered. The cost of printing maps for official use or sale is also included in this category. The cost of this project is expected to approximate the average during the last few years.

ESTIMATED EXPENDITURE \$ 2,000.00

8. STATE MAPS

A small amount is included under this item to cover the cost of any expenses in connection with the preparation of State maps.

ESTIMATED EXPENDITURE \$ 100.00

9. STRAIGHT LINE DIAGRAMS

These diagrams present an historical record of highway construction and maintenance occurring over a period of several years. Separate records are

prepared for the primary and secondary systems. The work on this project has been restricted during the past year because of the necessity of completing other high priority assignments. It is hoped that more emphasis may be granted to this project during the ensuing period, and the estimated expenditures have been increased for this reason.

ESTIMATED EXPENDITURE \$ 4,500.00

10. CITY PLATS

At the present time, the city plats are being revised to include the numerous changes which occur each year. Steady work on this activity is expected to extend well into the period of this budget. It is also planned to issue a new book of city plats during the coming year.

ESTIMATED EXPENDITURE \$ 2,000.00

11. MISCELLANEOUS MAPPING

A small amount is included to cover miscellaneous mapping activities not provided for elsewhere in the budget.

ESTIMATED EXPENDITURE \$ 100.00

12. AUTOMATIC COUNTERS - INSTALLATION AND REPAIR

At the present time, all of the automatic traffic counters are installed in rural locations. With the increasing importance of urban traffic, it has been decided that two additional automatic counters should be installed in urban locations. Since photo-electric counters do not appear to perform satisfactory under conditions of high traffic, purchase of treadle-actuated counters is planned for these new locations. This item also includes the cost of servicing and repairing the present counters.

ESTIMATED EXPENDITURE \$ 4,000.00

13. PORTABLE COUNTERS - INSTALLATION AND REPAIR

Many of the present portable counters have been in service for several years, with a consequent increase in the cost of servicing and replacement of parts. Unless an unforeseen demand develops, it is not expected that the purchase of new counters will be required during the year.

ESTIMATED EXPENDITURE \$ 2,500.00

14. TRAFFIC COUNTS - REGULAR

In addition to the regular traffic counting program, it is expected that several special counts will be required to obtain traffic volumes on roads intersecting the Interstate System. These counts are necessary to determine the need for control access and traffic separation structures. The

cost of this activity has been increased to allow for this extra work.

ESTIMATED EXPENDITURES \$ 30,000.00

15. TRAFFIC MAPS

During the past year, new sectional traffic maps and tables have been ordered to replace obsolete records. The annual traffic flow map has also been revised to show the volume of truck traffic in addition to total traffic. A portion of the cost of this work will be carried over into this budget period.

ESTIMATED EXPENDITURE \$ 1,000.00

16. SPEED STUDIES

Annual speed studies are conducted which involve the use of radar equipment. The results are published and are used for design purposes and to determine speed trends. The cost of this project is expected to be about the same as for previous years.

ESTIMATED EXPENDITURE \$ 500.00

17. SPECIAL TRAFFIC STUDIES

The Billings and Kalispell traffic surveys, which were conducted last year, are practically finished; however, a small amount is included in this estimate to cover printing costs.

Tentative plans call for an urban survey in the city of Butte during this year. This will probably be a full scale survey similar to the Billings survey and will cost about \$15,000.00. It is also believed that a limited survey will be necessary in Glendive with a probable cost of \$5,000.00.

ESTIMATED EXPENDITURE \$ 20,500.00

18. FISCAL STUDIES - STATE

The State fiscal studies will be conducted in the same manner as in the past, and it is estimated that the cost will be about the same as last year. These include the annual reports which are submitted to the Bureau of Public Roads for national summarization.

ESTIMATED EXPENDITURE \$ 1,000.00

19. FISCAL STUDIES - LOCAL

Illness of the employee who prepares the Local Finance Report has resulted in some delay in the preparation of this report. It is probable that the lost time will carry over into the period of this estimate, and the cost has been increased accordingly.

ESTIMATED EXPENDITURE \$ 2,000.00

20. ROAD LIFE STUDY

During the past year, Federal Aid Routes 1 and 3 have been rechecked for accuracy and the data have been transcribed to the new RL - 1 form. The urgency of other work prevented the preparation of the planned report on Road Life and Cost Data for U. S. Highway No. 10; however, the data will be brought up to December 31, 1954 and the full report should be completed by the end of this year.

ESTIMATED EXPENDITURE \$ 4,500.00

21. STATE MILEAGE TABLES

The annual State Mileage Tables will be prepared on about the same basis as in the past. There should be a moderate increase in the work required as the result of the planned increase in the highway construction program.

ESTIMATED EXPENDITURE \$ 800.00

22. FEDERAL AID ROAD LOG

The log will be revised this year to include an extra column for the year of latest improvement. This will involve complete re-typing of all sheets on the new form. The expanded highway construction program will also result in a corresponding increase in the work on this project. For these reasons there is a substantial increase in the amount budgeted for this activity.

ESTIMATED EXPENDITURE \$ 7,500.00

23. ECONOMIC STUDIES - PRIMARY SYSTEM

Since it appears that the Missouri River Bridge north of Lewistown will not be constructed as a toll facility, the toll bridge study for this project has been dropped.

An origin-destination survey for the Fort Peck - South highway was conducted during the summer of 1954. These data have not been analyzed as yet, and a small allowance is included in this estimate to cover the cost of the report.

It is probable that some special studies may have to be made in connection with the Interstate System, but the nature and extent of these studies cannot be forecast at this time.

ESTIMATED EXPENDITURE \$ 1,000.00

24. ECONOMIC STUDIES - SECONDARY SYSTEM

This category includes the necessary expenses involved in the analy-

sis and processing of additions and revisions to the Secondary System. It is probable that the cost of this activity will be about the same as last year.

ESTIMATED EXPENDITURE \$ 700.00

25. ECONOMIC STUDIES - URBAN

The urban traffic problem is becoming increasingly prominent, and it is probable that there will be several new routes proposed for addition to the highway system. The cost of analyzing and processing these routes is included in this estimate.

ESTIMATED EXPENDITURE \$ 500.00

26. SPECIAL ECONOMIC STUDIES

Provision is made in this estimate for special studies which are not included in other categories.

ESTIMATED EXPENDITURE \$ 500.00

27. BEHAVIOR STUDY

This is a study which has been in operation for several years. It consists of the taking of numerous samples from roadway sections throughout the State, the analysis of the samples in the testing laboratory, and the recording of analysis data on condensed forms. The objective of the study is to determine the factors which contribute to superior highway performance or failure, as the case may be. The present work is confined largely to the recording of data on the analysis forms and involves the full time services of one man.

ESTIMATED EXPENDITURE \$ 4,000.00

28. MOTOR VEHICLE USE STUDY

The Motor Vehicle Use Study is almost completely typed and is partially photographed and printed. The cost of completing the printing will carry over into the period of this estimate. Because of the fact that this is a detailed and voluminous report, it is proposed that the major points of interest be summarized and printed in simplified form in a small booklet which will be of general interest to the public. Since State law requires that material for public distribution be printed by commercial firms, an allowance has been included in this estimate to cover the cost of this printing.

ESTIMATED EXPENDITURE \$ 2,500.00

29. LOADOMETER SURVEY

Because the results of the Expanded Loadometer Survey have not met expectations, the decision has been made to curtail operations to annual weighing at the selected stations. Under these conditions, the project will revert to the

same status that prevailed before the expanded phases were included in the survey. The cost will be decreased correspondingly.

ESTIMATED EXPENDITURE \$ 2,000.00

30. PORT-OF-ENTRY SURVEY

During last summer an experimental truck survey was conducted at Lima and Saltese near the borders of the State. The results of this survey produced interesting information concerning truck characteristics, movements, and commodity transportation. It was of special interest with respect to the interstate movement of trucks. It is proposed to renew the survey during the summer of 1955 and to expand the scope and the number of locations at which the survey will be conducted.

ESTIMATED EXPENDITURE \$ 12,000.00

31. HIGHWAY NEEDS AND FINANCING STUDY

For a number of years the Planning Survey Division has been requested to provide necessary information and statistics to support proposed legislation for the advancement of highway construction in the State and the Nation. The greater part of these data have been compiled for use of the various Governor's Interim Highway Committees. Recent legislation provided for the creation of a Fact Finding Committee on Highways, Streets and Bridges to make an intensive study of the whole highway transportation problem in the State. The committee is to be financed through the imposition of a nominal fee on all trucks and trailers. Although this committee will be self-supporting, it is certain that the Planning Survey Division will be required to spend considerable time and effort in compiling data for the use of the committee. It also probably will be necessary to conduct special studies, within the scope of planning activities, to obtain data not now available from existing records. It is expected that the cost of this project will far exceed any amount expended in previous years.

ESTIMATED EXPENDITURE \$ 10,000.00

32. TRUCK OPERATING-COST STUDY

The Bureau of Public Roads has suggested that a study be undertaken which involves the interviewing of major truck operators for the purpose of obtaining important information regarding truck operations. The interviewer will also have to inspect available records, if permissible, to extract the necessary data. This study should result in some badly needed information concerning truck operations which will be of great value in future planning and statistical functions.

ESTIMATED EXPENDITURE \$ 1,000.00

33. UNDISTRIBUTED OVERHEAD

This category includes the salary of the Planning Survey Engineer

and the salary of other employees whose work cannot logically be charged to a specific activity. It also includes such items as rent, electricity, janitor service, supplies and other material which cannot be segregated by project. The Highway Research Board fee for publications is a major item which also comes under this category.

ESTIMATED EXPENDITURE

\$ 21,166.00

In preparing this estimate, each project was analyzed and the costs were estimated on an annual basis. Since the annual cost exceeded the amount provided for under HPS 1 (15), the period of this budget and the amount of money allowed for each activity were reduced proportionately to correspond with the actual funds available. As the funds provided for in this estimate approach depletion, another estimate will be prepared to include the money programmed under HPS 1 (16).

S U M M A R Y

<u>Item</u>	<u>Description</u>	<u>Amount</u>
1.	Road Inventory - Regular	\$ 2,000.00
2.	Road Inventory and Field Checking of Maps	20,000.00
3.	Bridge Inventory	2,500.00
4.	Sufficiency Ratings	2,000.00
5.	Truck and Bus Inventory	5,500.00
6.	County Maps - Aerial	15,000.00
7.	County Maps - Other	2,000.00
8.	State Maps	100.00
9.	Straight Line Diagrams	4,500.00
10.	City Plats	2,000.00
11.	Miscellaneous Mapping	100.00
12.	Automatic Counters - Installation and Repair	4,000.00
13.	Portable Counters - Installation and Repair	2,500.00
14.	Traffic Counts - Regular	30,000.00
15.	Traffic Maps	1,000.00
16.	Speed Studies	500.00
17.	Special Traffic Studies	20,500.00
18.	Fiscal Studies - State	1,000.00
19.	Fiscal Studies - Local	2,000.00
20.	Road Life Study	4,500.00
21.	State Mileage Tables	800.00
22.	Federal Aid Road Log	7,500.00
23.	Economic Studies - Primary System	1,000.00
24.	Economic Studies - Secondary System	700.00
25.	Economic Studies - Urban	500.00
26.	Special Economic Studies	500.00
27.	Behavior Study	4,000.00
28.	Motor Vehicle Use Study	2,500.00
29.	Loadometer Survey	2,000.00
30.	Port-of-Entry Survey	12,000.00
31.	Highway Needs and Financing Study	10,000.00
32.	Truck Operating-Cost Study	1,000.00
33.	Undistributed Overhead	<u>21,166.00</u>
TOTAL		\$ 185,366.00

Submitted: _____

Charles S. King
Planning Survey Engineer

Approved: _____

Scott P. Hart
State Highway Engineer

Recommended for
Approval: _____

R. M. Arenz, Highway Engineer
Bureau of Public Roads

